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# PROCESS FOR AGGREGATING PRELIGHTENED COFFEE COMPOSITIONS

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## ABSTRACT OF THE DISCLOSURE

Prelightened, soluble coffee agglomerates are prepared by grinding powder comprising soluble coffee solids and coffee lightener solids to a particle size between about 90 microns and 150 microns and then agglomerating the ground powder. The coffee products produced in this manner have both a commercially acceptable appearance in glass jars and a good brew appearance in the cupped beverage.

## BACKGROUND OF THE INVENTION

This invention relates to an improved prelightened soluble coffee product and more particularly to the method of preparing such a product.

At present there is available on the market several different coffee powders from which a cup of coffee can be made by mixing about a teaspoon of the coffee powder with a cup of boiling water. In using any of these mixes, however, a coffee drinker who is accustomed to using cream with his coffee must add the cream separately. Alternatively, if he desires, he can use one of several non-dairy coffee lighteners which are sold to the public. But in either case he must keep on hand not only the powdered coffee, but also the cream or cream substitute.

Many previous attempts to prepare a prelightened soluble coffee have not proven to be commercially successful. Some of these products have been little more than a dry blend of soluble coffee solids and coffee lightening solids. Other products have been prepared by either agglomerating a mixture of soluble coffee solids and the lightener solids or spray-drying a mixture of coffee percolate and liquid coffee lightener.

Since soluble coffees are normally sold in clear glass containers, it has long been the desire to produce soluble coffee products that will present the granular or chunky appearance of roasted and ground coffee. Consumer studies show that there is a preference for soluble coffees which exhibit a dark brown color and granular particle appearance. Regular soluble coffees have been able to obtain these properties by means of the now well-known agglomeration technique. Problems have arisen, however, when prelightened coffee products have attempted to simulate this same type of appearance.

Agglomerated, prelightened coffee products which are produced either by agglomerating a blend of finely ground spray-dried coffee solids and unground spray-dried lightener solids or by agglomerating the solids obtained from spray-drying a mixture of coffee percolate and liquid coffee lightener have been disclosed in U.S. Pat. No. 3,458,319, issued to Block et al. The prelightened coffee products of the Block et al., patent do not, however, achieve the brown color and granular particle appearance preferred by the consumer.

It has been found that improved appearance for the agglomerated product can be obtained if the prelightened coffee mixture is finely ground in a mill to a particle size of less than about 50 microns before it is introduced into the agglomerator. This grinding step was conducted



in a manner similar to that disclosed in U.S. Pat. No. 3,227,558 to Richmond, wherein the coffee solids and lightener solids were thoroughly blended and then finely ground. Alternatively the grinding operation could be performed separately on the spray-dried coffee solids and the lightener solids, with subsequent blending of these ground particles.

The agglomerates obtained with the above fine grinding methods possess a desirable brown color, and as might be expected, are readily dissolved in water. However, it has been discovered that these agglomerated prelightened coffee products which include non-dairy lightener solids do not produce an attractive coffee beverage when dissolved in hot water. The beverages so produced exhibit an unsightly appearance due to the presence of a particulate white flock or insoluble white particles on surface of the resultant beverage.

## SUMMARY OF THE INVENTION

It has been discovered that if prelightened coffee material is ground to only an intermediate particle size prior to agglomeration, wherein substantially all of the particles are between about 90 microns and 150 microns, the problem of flocking in the cup can be avoided. This result is thought to be due to the absence of a rigorous grinding operation during which a portion of the protein (e.g. sodium caseinate) shell which normally surrounds each of the spray-dried, non-dairy lightener particles is removed. It is this disrupted protein which is thought to produce the white flock in the coffee beverage.

It is an object of this invention to produce a prelightened coffee product which exhibits a desirable brown color and a granular particle appearance.

It is a further object of this invention to produce a prelightened coffee product which presents a pleasing appearance in a glass jar and which will also cup to a clean appearing coffee beverage when dissolved in hot water.

## DESCRIPTION OF THE INVENTION

A commercially acceptable prelightened coffee powder is produced by agglomerating a substantially homogeneous blend containing on a percent weight basis from 35% to 55% soluble coffee solids and from 45% to 65% soluble lightener solids, wherein substantially all the solids in the blend (i.e. prior to agglomeration) possess a particle size between about 90 microns and 150 microns, and preferably between about 100 microns and 125 microns. The products of this invention will exhibit a pleasing brown and granular appearance, will cup to a clean, lightened, pleasant-tasting coffee beverage and will readily dissolve in hot water, without the formation of any lumps or curdling.

Suitable lightener solids are the spray-dried, non-dairy liquid lighteners which include an emulsified edible, low-melting-point fat, especially the vegetable fats such as hydrogenated palm kernel oil. High melting fats (above about 110° F.) tend to produce a heavy bodied lightener of poor palatability. Liquid fats are unsuitable because the emulsified fat tends to coalesce in the powdered lightener. The emulsified fat level determines the lightening power of the lightener formulation and a level in the range of 20% to 50% on a dry weight basis is found to be satisfactory with a level of about 40% being preferred.

Commercial emulsifiers, such as the mono and diglycerides, alone or in combination with the partial long chain fatty acid esters of a polyoxyethylene derivative of hexitans, and the like, are included in the lightener so that a stable fat emulsion will exist in the lightener.

A water dispersible protein material such as sodium caseinate is an important component of the lightener in order to impart a milk or cream-like character and taste